Middle Stone Age and early Late Stone Age lithic assemblages at Enkapune Ya Muto (Kenya)

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Recent research has pushed back in time the shift from the Middle Stone Age (MSA) to the Late Stone Age (LSA) in Africa, such as the site of Mumba rockshelter in Tanzania (~60ka, [1,2]), the site of Border Cave in South Africa (after 56ka, [3]) or the site of Enkapune Ya Muto in Kenya (~50ka, [4]). However, the process of change from the MSA to the LSA remains poorly understood. This paper focuses on the lithic assemblages from Enkapune Ya Muto in order to better understand the nature of changes in lithic technology during the Late Pleistocene at this site and how the early LSA assemblage (Nasampolai industry) distinguishes itself from the other levels.

Enkapune Ya Muto, located west of Lake Naivasha in Kenya, has yielded three levels dated to the Late Pleistocene: (1) RBL4 stratum with low densities of MSA material (Endingi industry), (2) GG and OL strata with low densities of one of the earliest known LSA (Nasampolai) industries (>50ka) and (3) DBL stratum with high densities of an early LSA (Sakutiek) industry (ca 35-40ka) [4]. In the original description of the assemblages, Ambrose [4] notes that the later Sakutiek industry has more "transitional" characteristics (such as low frequencies of parti-bifacial knives, discoidal cores and faceted-platform flakes) than the early LSA Nasampolai industry. This would suggest a non-linear change from the MSA to the LSA in this region. This paper aims to further investigate and quantify changes in lithic technology across these three levels and provides a detailed comparative typo-technological analysis of these assemblages.

Methods used rely on the *chaîne opératoire* concept combined with an attribute analysis. In particular, for each category of artefact studied (i.e. flakes/blade(let)s, core trimming elements (CTE's), cores, retouched tools) a specific set of attributes is recorded in order to reconstruct and quantify the differences between the assemblages for each step of the *chaîne opératoire* (conception of debitage, technique of percussion, preparation of the striking platform(s) and flaking surface, modification of the blanks by retouch, etc.).

The lithic material from Enkapune Ya Muto is mostly made on obsidian. Results suggest a major change in technology between the MSA level, characterised by an assemblage oriented towards the production of faceted-platform flakes and in a lesser extent of pointed blanks, and the two LSA levels, which have yielded blade(let)-based assemblages. Despite the discrepancy in lithic numbers between the two LSA levels, the analysis shows that the early LSA assemblage (Nasampolai) is characterised by the presence of few volumetric blade cores, high number of CTE's and retouched tools including large backed segments, whereas the later LSA assemblage (Sakutiek) is characterised by numerous cores-on-flakes/blades for bladelet production, few CTE's and rare retouched tools including end-scrapers, scaled pieces and few geometrics. Large flakes with faceted platforms were also noted, although no core could be associated with this production. This study provides new data on one of the earliest known LSA industries in Africa. The early LSA at Enkapune Ya Muto is another example of the variability of early LSA industries and these results add to the evidence of many regionally-different shifts from the MSA to the LSA across Africa.

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